JUVENILE STRIPED BASS ABUNDANCE. The Juvenile Abundance Index (JAI) for striped bass in the western Albemarle Sound is obtained each year by trawling at seven stations. The JAIs for 1991, 1992, and 1993 was 0.86, 2.57, and 44.54. The 1993 value is the highest ever recorded for the species in the Roanoke/Albemarle system.

AGE, GROWTH, AND SURVIVAL OF JUVENILE STRIPED BASS. Striped bass spawning in the Roanoke River can be manipulated by water releases from Roanoke Rapids Reservoir upstream. The spawning window is longer (80-100 days) than is currently managed (up to 76 days) by Virginia Power, the Corps, and WRC. Three years of data, 1990-1992, indicate that spawning activity late in the season accounts for over half of the successfully recruited juveniles in Albemarle Sound. Early spawning activity also may account for better than expected recruitment in some years. It is not known whether this phenomenon is correlated with environmental factors, age of spawning fish, or both. Since what constitutes optimal conditions is not known, the River flow should be managed to mimic historical river flows from 1 April to 30 June.

FOOD HABITS OF JUVENILE STRIPED BASS. Juvenile striped bass consumed a greater percentage of mysid shrimp than any other prey taxa. Invertebrates in general were more prevalent in the diet than were fish. There is insufficient evidence to determine any change in the benthic or epibenthic fauna that would be reflected in the diet. Determination of food availability, particularly invertebrate fauna, at the time of fish collection would indicate if the juvenile fish were limited by food.

RELATIVE ABUNDANCE OF OTHER FINFISH SPECIES. A remarkable increase in striped bass juvenile abundance has occurred since 1987. A major consideration is how other fish species have responded during this same period of time as measured by the annual trawling survey. To evaluate this, 10 species of finfish were selected and the annual catch rates, expressed as the number of fish/trawl, were plotted for 1982-1993. Of the 10 species evaluated, six had higher CPUE values for 1988-1993, the same time that CPUE was increasing for striped bass. However, of the six, only bay anchovy reflected a significant increase. It would appear that the revised flow regime (1988-1993) has not had a significant impact on the recruitment of these selected species. Unlike the striped bass, however, the selected species are not restricted to spawning in the Roanoke River.

CHLOROPHYLL *a* AND PHYTOPLANKTON. In general, spring 1991 chlorophyll *a* values were higher in the lower Roanoke River and western Albemarle Sound than in Batchelor Bay. A total of 154 phytoplankton species have been identified in the study. The phytoplankton group with the highest diversity is Bacillariophyceae. Phytoplankton biomass values for 1991 were similar to those reported for 1990, both of which were lower than those reported for the low flow years of 1985 and 1986. There is good evidence that this difference was caused by differences in River flow. This inverse River flow - algal biomass relationship appears to be common in riverine ecosystems.

ZOOPLANKTON. Several distinct zooplankton communities exist in the lower watershed and western Sound. Cladocerans dominate River zooplankton; copepods dominate Batchelor Bay samples; and cyclopoid copepods dominate samples in the western Albemarle Sound. Relative abundance of taxonomic groups in these locations is influenced by Roanoke River instream flow.

SUSCEPTIBILITY OF LARVAL FISHES TO ENTRAINMENT. Larval fish of seven taxa, including striped bass, common to the lower Roanoke River were analyzed for body dimensions. Results indicate that fish larvae of both resident and anadromous species are of entrainable size through 2-mm mesh wedge-wire screen. Since the young of these fish are common to the lower Roanoke River, the siting of intakes for water withdrawal pipes is critical.